



THE KOREAN INTELLECTUAL PROPERTY OFFICE

This is to certify that the following application annexed hereto is a true copy from the records of the Korean Intellectual Property Office.

Application Number : 10-2002-0069035
Date of Application : November 08, 2002
Applicant(s): Electronics and Telecommunications
Research Institute

October 08, 2003

COMMISSIONER (seal)



[Form Name] Patent Application
[Application Type] Patent
[Receiving Office] Honorable Commissioner of Korean
Patent Office
[Reference No.] 0003
[Filing date] November 08, 2002
[Title of invention] PORTABLE USB STORAGE DEVICE
[Applicant]
[Name] Electronics and Telecommunications
Research Institute
[Applicant code] 3-1998-007763-8
[Agent]
[Name] Jang, Seong Ku
[Agent code] 9-1998-000514-8
[Registration No.
of General POA] 2001-038646-2
[Agent]
[Name] Kim, Won Joon
[Agent code] 9-1998-000104-8
[Registration No.
of General POA] 2001-038648-7
[Inventor]
[Name] Choi, Dae Seon
[Citizenship]
Registration No.] 730302-1069411
[Zip Code] 302-283
[Address] Nuri Apt. 109-803, Wolpyeong 3-dong,
Seo-gu, Daejeon, Korea
[Citizenship] Republic of Korea
[Inventor]
[Name] Kim, Hee Sun
[Citizenship]
Registration No.] 751015-2262118
[Zip Code] 305-350
[Address] The old building 326, 236-1 Gajeomg-



dong Yuseong-gu, Daejeon, Korea

[Citizenship] Republic of Korea

[Inventor]

[Name] Kim, Taesung

[Citizenship]

Registration No.] 721202-1221829

[Zip Code] 305-803

[Address] Hansol Apt., 203-705, Songgang-dong,
Yuseong-gu, Daejeon, Korea

[Citizenship] Republic of Korea

[Inventor]

[Name] Roh, Jong-Hyuk

[Citizenship]

Registration No.] 700420-1143627

[Zip Code] 1376-7

[Address] Guwol3-dong, Namdong-gu, Incheon,
Korea

[Citizenship] Republic of Korea

[Inventor]

[Name] Cho, Sang Rae

[Citizenship]

Registration No.] 711023-1037015

[Zip Code] 305-752

[Address] Cheongsol Apt. 205-608. Songgang-dong,
Yuseong-gu, Daejeon, Korea

[Citizenship] Republic of Korea

[Inventor]

[Name] Cho, Young Seob

[Citizenship]

Registration No.] 691212-1155513

[Zip Code] 305-350

[Address] Hanaro Apt., 102-706, 311-1 Wolpyeong-
dong Seo-gu, Daejeon, Korea

[Citizenship] Republic of Korea

[Inventor]

[Name] Jin, Seung Hun



[Citizenship
Registration No.] 680723-1037010
[Zip Code] 302-752
[Address] Baekhap Apt. 104-1405, Wolpyeong-dong
Seo-gu, Daejeon, Korea
[Citizenship] Republic of Korea

[Effect] The above application is filed in
accordance with Article 42 of Korean
Patent Law.
Agent Jang, Seong Ku (signed)
Agent Kim, Won Joon (signed)

[Official Fee]
[Basic Fee] 13 Page 29,000 Won
[Surcharge] 0 Page Won
[Claim Priority] None 0 Won
[Request for Examination] 7 claims 333,000 Won
[Total] 362,000 Won
[Attachment]
1. An abstract and a specification (and drawings)



[ABSTRACT]

The present invention discloses a portable USB storage device capable of keeping a USB port inside of a case so that the portable USB storage device can be carried and used without a sheath for protecting the USB port. The portable USB storage device used to be connected to an input/output port of a variety of terminal devices including personal computers to input/output data comprises a case containing therein a data storage; a USB port capable of being inserted into the case in a sliding motion; and a control device for selectively controlling a location of the USB port. In accordance with the present invention, the USB port functioning as a main input/output unit of memories of the portable USB storage device can be kept inside of the case for protection when moved and carried, thereby enhancing usability and convenience of the portable USB storage device.

[REPRESENTATIVE DRAWING]

FIG. 2

SPECIFICATION

[TITLE OF INVENTION]

PORTABLE USB STORAGE DEVICE

[BRIEF DESCRIPTION OF THE DRAWINGS]

Fig. 1 shows a perspective view of a conventional portable storage device having an USB port at one side thereof;

Fig. 2 describes a cross-sectional view of a portable USB storage device in accordance with the present invention; and

Fig. 3 depicts the state of the portable USB storage device in accordance with the present invention when used or not used.

<Major Reference Numerals>

11: a case	12: an USB port
13: a control device	14: a guideway
15: a lever	16: a control switch
17: holes	18: a stopper
19: an elastic member	20: a spring

[DETAILED DESCRIPTION OF THE INVENTION]

[OBJECTS OF THE INVENTION]

[FIELD OF THE INVENTION AND PRIOR ART IN THE FIELD]

The present invention relates to a portable universal

serial bus (USB) storage device; and, more particularly, to a portable USB storage device capable of enhancing usability, portability, and convenience for a user by keeping a USB port inside of a case so that the portable USB storage device can be carried and used without a sheath for protecting the USB port.

Recently, various portable storage mediums have been introduced as a result of a constant change in a network environment and a demand for a more convenient data storage and improved mobility. Further, new storage mediums lead to the development of high capacity portable storage devices using a flash memory.

Such portable storage devices that have been purchased by certain experts are now used as essential peripheral devices of a personal computer (PC), e.g., a bundled product provided with a purchase of a PC, or those of a personal digital assistant (PDA), e.g., accessories of a PDA.

Accordingly, a market size of the portable storage devices will be gradually expanded. The portable storage devices have been used mainly by professionals, e.g., graphic designers who often transmit high capacity data. However, as data capacity of a multimedia file such as game software and MP3 files becomes large, purchases by non-professionals are on the rise.

Especially, since Intel Corp. and Microsoft Corp. announced their plans not to support a floppy disc drive

(FDD), a portable storage device is expected to replace the FDD. Further, the portable storage device is suitable for an auxiliary storage device of a PDA having a small storage capacity. Therefore, an increasing demand for the portable storage device of PDA manufacturers is also predicted.

Major features of the portable storage device are its remarkable portability, mobility, compactness, and lightness. Moreover, the portable storage device can be simply connected without a separate adapter and does not require a separate power supply due to enough power provided from a USB port.

Meanwhile, the portable storage device having the above-described advantages has been developed based on an USB technology. The USB is a peripheral bus protocol developed by Compaq Corp., Intel Corp., Microsoft Corp., and the like for the initial purpose of providing a simple method for integrating a computer and a telephone.

Such protocol has been developed into a USB 1.0 standard for facilitating a convenient integration of maximum 127 peripheral devices in a PC. And also, a USB 1.1 standard complements problems of the USB 1.0 standard. Such USB technology is able to support new devices capable of transmitting voice data and compressed video data in real-time, synchronizing mixed modes, varying PC components, and improving PC performance.

In the meantime, the USB, which is basically a serial

bus, implements a notion of master/slave and provides a direct connection or a connection through a hub between a host and each peripheral device.

Currently, various products employing a USB interface are introduced, wherein the USB interface allows a connection between a PC and most of peripheral devices, e.g., a printer, a scanner, a keyboard, a mouse, a joystick, a gamepad, a video camera, a still image camera, a modem, an ISDN adaptor, and an ethernet adaptor.

Further, connectors, e.g., USB to IDE, USB to PS/2, USB to printer port, USB to serial port, and the like, can be used for connecting conventionally used devices with a USB port.

Fig. 1 shows a conventional portable storage device having a USB port at one side thereof.

As illustrated in Fig. 1, the conventional portable storage device has a structure of an inner main body being completely covered by a case 1. The inner main body includes therein memories (ROM and RAM), a clock signal generator, an interrupt controller (not shown), and the like, thereby enabling data to be downloaded from peripheral devices through a USB port 3 and data stored in the memories to be uploaded to the peripheral devices and the like.

Meanwhile, the portable storage device is provided with a sheath 2 for protecting the USB port 3 functioning as a main input/output unit of memories from external damages

and a user from the USB port 3 made of sharp materials. Since, however, the sheath 2 is separable from the case 1, it is inconvenient to carry. Further, in case the sheath 2 is lost, it is hardly possible to protect the USB port 3. In addition, with a possibility of causing physical injuries to the user, the portable storage device is not convenient to use and carry with the sheath 2 off.

[TECHNICAL OBJECT OF THE INVENTION]

It is, therefore, an object of the present invention to provide a portable USB storage device capable of enhancing usability, portability and convenience for a user by keeping a USB port inside of a case so that the portable USB storage device can be carried and used without a sheath for protecting the USB port.

In accordance with the present invention, there is provided a portable USB storage device including: a case containing therein a data storage; a USB port capable of being inserted into the case in a sliding motion; and a control device for selectively controlling a location of the USB port.

The above and other objects and features of the present invention will become more apparent from the following description of preferred embodiments given in conjunction with the accompanying drawings by those skilled in the art.

[TECHNICAL CONSTITUTION OF THE INVENTION]

Hereinafter, a preferred embodiment of the present invention is described in detail with reference to the accompanying drawings.

Fig. 2 describes a cross-sectional view of a portable USB storage device in accordance with the present invention.

As can be seen from Fig. 2, the portable USB storage device in accordance with the present invention does not have a separate sheath for protecting a USB port 12 and is able to selectively keep the USB port 12 inside or outside of a case 11 by using a control switch 16.

The portable USB storage device in accordance with the present invention may be connected to an input/output port of various terminal equipments including a computer so that data can be inputted or outputted. Further, the case 11 contains therein a data storage device and the USB port 12 is installed at one side of the case 11 so as to be kept inside of the case 11 by a sliding travel. A control device 13 for selectively controlling a location of the USB port 12 is provided at one end of the case 11.

Thus, the USB port 12 can be protruded from the case 11 in order to be connected to an input/output port of various terminal equipments (hereinafter, referred to as "using mode"), while the USB port 12 can be kept inside of the case 11 when moved or carried (hereinafter, referred to as "carrying mode").

Formed at one end of the case 11, where the USB port 12 is installed, is a guideway 14 which leads the USB port 12 to travel along in a sliding motion. A stopper 18 is provided at one side of the USB port 12 and operated under the control of the control device 13.

The control device 13 in accordance with the present invention has a control switch 16 and a lever 15 positioned at one end of the case 11. The control switch 16 turns around on the lever 15 as a central axis in a seesaw motion. The case 11 has holes 17a and 17b at positions corresponding to both end portions of the control switch 16, so that the stopper 18 can be inserted therein. An elastic member 19 is disposed between the case 11 and the USB port 12 to thereby restore the USB port 12.

The USB port 12 in accordance with the present invention slides along a distance between the two holes 17a and 17b, and the distance therebetween is designed so that the protruded USB port 12 can be sufficiently kept inside of the case 11.

The location of the USB port 12 in accordance with the present invention is fixed by way of the stopper 18 being protruded into the holes 17a and 17b formed at one end of the case 11. Specifically, when the USB port 12 is protruded, i.e., during the using mode, the stopper 18 is inserted into the front hole 17a. On the other hand, in case the USB port 12 is kept inside of the case 11, i.e., during the carrying

mode, the stopper 18 is inserted into the rear hole 17b. To do so, the structure of the stopper 18 needs to be elastic in the direction perpendicular to a moving direction of the USB port 12. Referring to Fig. 2, there is illustrated the stopper 18 elastically supported by a spring 20. However, since the stopper 18 shown in Fig. 2 is only an example, those who skilled in the art may vary the structure of the stopper 18.

The control switch 16 in accordance with the present invention presses the stopper 18 inserted into the hole 17a or 17b, so that the USB port 12 can be unlocked and the mode of the USB port 12 may be changed into the using mode or the carrying mode. It is preferable that both end portions of the control switch 16 are bent and protruded toward the stopper 18 to thereby facilitate a deeper press than a depth of the holes 17a and 17b.

Fig. 3 presents the state of the portable USB storage device in accordance with the present invention when used or not used.

As illustrated in Fig. 3, in order to connect the portable USB storage device to an input/output port of various terminal devices, the USB port 12 should be protruded from the case 11 and the mode of the USB port 12 should be maintained in the using mode (illustrated as a two dot chain line). However, the USB port 12 can be kept inside of the case 11 and the mode of the USB port 12 may be

changed into the carrying mode (illustrated as a solid line) in order to move and carry the portable USB storage device after use.

If the control switch 16 is pressed, one end portion thereof presses the stopper 18 inserted into the hole 17a, thereby separating the stopper 18 from the hole 17a and unlocking the USB port 12. Next, the USB port 12 is pushed by a user and inserted into the case 11 in a sliding motion through the guideway 14. At this time, the stopper 18 is also transferred until it reaches the hole 17b and is inserted therein by a restoring force. As a result, the sliding travel of the USB port 12 is stopped, and the mode of the USB port 12 is converted into the carrying mode by the locking of the stopper 18.

As described above, in case the mode of the portable USB storage device in accordance with the present invention is changed into the carrying mode, mobility and portability thereof are enhanced. Further, there is no need for a sheath for protecting the USB port 12. Moreover, it is possible to previously prevent the USB port 12 from being physically damaged.

While the invention has been shown and described with respect to the preferred embodiments, it will be understood by those skilled in the art that various changes and modifications may be made without departing from the spirit and scope of the invention as defined in the following

claims.

[EFFECT OF THE INVENTION]

As described above, in accordance with the present invention, the USB port functioning as a main input/output unit of memories of the portable USB storage device can be kept inside of the case for protection when moved and carried, thereby enhancing usability and convenience of the portable USB storage device.

[CLAIMS]

1. A portable USB storage device, used to be connected to an input/output port of a variety of terminal devices including personal computers, comprising:

a case containing therein a data storage;

a USB port capable of being inserted into the case in a sliding motion; and

a control device for selectively controlling a location of the USB port.

2. The portable USB storage device of claim 1, wherein the mode of the USB port is converted into a using mode or a carrying mode by control of the control device.

3. The portable USB storage device of claim 1, wherein the case has a guideway at one end thereof so that the USB port can be transferred in a sliding motion.

4. The portable USB storage device of claim 1, wherein the control device has a control switch turning around on a lever as a central axis in a seesaw motion, the lever being positioned at one end of the case; and

wherein the case has two holes formed at positions corresponding to both end portions of the control switch, the two holes allowing a stopper to be inserted thereinto;

and

wherein the case and the USB port have therebetween an elastic member for restoring the USB port.

5. The portable USB storage device of claim 4, wherein the structure of the stopper is elastic in the direction perpendicular to a moving direction of the USB port.

6. The portable USB storage device of claim 4, wherein the stopper is elastically supported by a spring.

7. The portable USB storage device of claim 4, wherein both end portions of the control switch are bent in order to depress the stopper.